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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/538,871
Filing Date: August 18, 2005
Appellant(s): LEUCHT ET AL.

Manabu Kanesaka
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed March 03, 2008 appealing from the Office action mailed December 13, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellants' statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

Claims 1-9, **15**, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozaki (US 6248820) in view of Marx (US 4774268).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,248,820	NOZAKI et al	6-2001
4,774,268	MARX et al	9-1988
US 2004/0121114	PIANA et al	6-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-9, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozaki et al (US 6,248,820) in view of Marx et al (US 4,774,268).

Nozaki et al. teach a flame retardant for flameproof mesh sheets which does not generate harmful halogen gas. The flame retardant for mesh sheets comprises red phosphorus, an ammonium polyphosphate compound in an amount of 10 to 70 parts by weight based on 100 parts by weight of an aqueous dispersion, and a resin solid content (abstract). Ammonium polyphosphate acts as the flame retardant and would necessarily be an acid donor. The flame retardant can be used to impregnate flameproof mesh sheets woven out of coated yarn (col. 3, lines 6-8). The polymer can be a polyurethane having the main structure of a polyester (col. 4, line 23). The red phosphorus promotes the carbonization of polyurethane (col. 5, lines 60-62), which necessarily acts as a carbon donor. The polyurethane aqueous dispersion is present in amounts of about 10 to 70 wt. % (col. 4, lines 45-46). The flame retardant coating comprises a foaming agent (column 7, lines 60-65). Likewise, it is clearly apparent that the blowing agent in the coating material may expand upon exposure to heat or flame during a fire of sufficient severity to induce charring of the coating material, thereby forming a flame extinguishing foam. Inherent to polyurethane is a crystallization

temperature of less than 190°C and a melting temperature in the range of 50°C to 400°C or a decomposition temperature in the range of 150°C to 500°C. Therefore, the polyurethane would necessarily have a difference between the melting temperature and the crystallization temperature in the range of 55 to 70 K. Nozaki expressly states at column 4, lines 58-67 that the red phosphorous that is provided may provide a strong red tint if too much is used. This at least implies that the coating is transparent. Alternatively, while the reference does not require the coating to be transparent it would have been obvious to a person having ordinary skill in the art to do so in order to be able to view the underlying substrate. Although Nozaki et al. do not explicitly teach the claimed carbon content, it is reasonable to presume that the polymer material inherently provides a share of at least 20 weight percent of the carbon. Support for said presumption is found in the use of like materials (i.e. flame retardants for mesh sheets), which would result in the claimed property. The burden is upon the Appellants to prove otherwise. In addition, the presently claimed property would obviously have been present once the claimed product is provided. Nozaki et al. teach the use of mold preventing agents (col. 7 lines 62-63), but do not specifically teach an insecticide or bactericide. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a mold preventing agent as the Examiner takes Official Notice of the equivalence of insecticides or bactericides and mold preventing agents for their use in the art and the selection of these known equivalents to be used as fungicides would be within the level of ordinary skill in the art. Further, it would have been obvious to one having ordinary skill in the art at the time the invention

was made to select the desired weight percents of the fungicides through the process of routine experimentation in order to arrive at values which offered the optimum fungus or bacteria prevention in the invention of Nozaki et al.

Nozaki et al. fail to teach that the coating comprises from 0.5 to 10-weight % of an isocyanate or a melamine-formaldehyde. Marx et al. are drawn to flame resistant polyurethane compositions. Marx et al. teach that the flame retardant composition comprises from 10 to 50 weight percent of a melamine formaldehyde (col. 7, lines 45-48). Marx discloses that the flame retardant comprising melamine formaldehyde and ammonium phosphate are widely used as an impregnating resin for a flame retardant coating of paper and textile auxiliaries (column 7, lines 45-50; and column 8, lines 5-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the melamine formaldehyde of Marx et al. into the coating composition of Nozaki et al. because melamine formaldehyde is known to be used in combination with ammonium phosphate to form an impregnating resin for a flame retardant coating of paper and textile auxiliaries. Additionally, Piana et al will be relied on as evidence to show that melamine formaldehyde acts as a crosslinking agent in a flame retardant polyurethane resin. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the melamine formaldehyde of Marx et al. into the coating composition of Nozaki et al. motivated to act as a crosslinking agent as well as to allow the polyurethane to soften when heated as evidenced by Piana et al (US 2004/0121114).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nozaki et al (US 6,248,820) in view of Marx et al (US 4,774,268) as applied to claim 1 above, and further in view of Maples (US 6,284,343).

Nozaki et al. do not specifically teach an agent for deaeration. Maples et al. are drawn to fire resistant carpet backing comprising a polyurethane dispersion. Maples et al. teach a composition comprising a defoamer in a range of about 0.01 to 1.0 wt.% (col.8, Table). Defoamers are known in the art as equivalents of deaerating agents. It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a defoaming agent to the polyurethane dispersion of Nozaki et al. motivated to remove oxygen and prevent the coating from foaming.

(10) Response to Argument

The examiner's comments regarding Appellants' issue A1

Appellants contend that the generation of CO_2 and nitrogen fails to suggest the formation of a flame extinguishing foam. The examiner respectfully disagrees. The Nozaki flame retardant coating comprises a foaming agent (column 7, lines 60-65). Likewise, it is clearly apparent that the blowing agent in the coating material may expand upon exposure to heat or flame during a fire of sufficient severity to induce charring of the coating material, thereby forming a flame extinguishing foam. Alternatively, it appears that the flameproof mesh sheets of Nozaki et as modified by Marx et al made from the same materials as an intumescent body of the present invention, a non-intumescent polymer woven mesh sheet and a transparent coating that is formed from a polyurethane dispersion, a melamine-formaldehyde and ammonium

polyphosphate. Nozaki uses the same polymer to form a woven mesh sheet as Appellants. Nozaki discloses that the ammonium polyphosphate generates nitrogen gas which shuts off oxygen to the material. This appears to be the same mechanism that is provided by Appellants. The generation of CO_2 and nitrogen gases would cause the coating to swell and would thus fall within a reasonable definition of an intumescent material. While Nozaki does not use the term intumescent to describe the material, the description in the Nozaki patent of the flame retarding mechanism appears to be the same as with any other material that is named "intumescent". Therefore, it is not seen that the flame extinguishing foam could not have been generated when the flameproof mesh sheet is exposed to the flame.

The examiner's comments regarding Appellants' issue A2

Appellants contend that Nozaki el al teach away from a transparent coating. That is not accurate in view of the disclosure of Nozaki et al. The examiner directs Appellants' attention to column 4, lines 58-67 of Nozaki et al that the red phosphorous provides a strong red tint if too much is used. The phrase "red tint" itself is at least implies that the coating is transparent. Alternatively, while the reference does not require the coating to be transparent it would have been obvious to a person having ordinary skill in the art to do so in order to be able to view the underlying substrate.

Appellants argue that "the film of Nozaki et al made from a mixture of carbon and condensation phosphoric acid formed on the surface of the resin, the Appellants' coating mass does not include a carbon-donor component that usually leads to a non-transparency of the intumescent mass." The examiner notes that the film made from a

mixture of carbon and condensation phosphoric acid formed on the surface of the resin is not generated until the flameproof mesh sheet is exposed to the flame. The red phosphorus which acts as a carbon donor is presented in an amount from 1.5 to 15 parts by weight based on the solid content of the aqueous dispersion. As previously discussed, the red phosphorous may provide a strong red tint if too much is used. The phrase "red tint" itself is at least implies that the coating is transparent. Alternatively, the Examiner maintains that it would have been obvious to provide the Nozaki material in transparent form in order to be able to view the underlying substrate since the material is not intended to dye or pigment the underlying fabric, but only to provide fire retardancy.

The examiner's comments regarding Appellants' issue A3

Appellants contend that there is no teaching, no suggestion in Marx that melamine-formadehyde is a crosslinking agent. The arguments that the examiner recites a motivation found only in Appellants' specification are unpersuasive because it has been shown in the prior art that melamine formaldehyde is widely used as a crosslinking agent in the flame retardant coating as evidenced by Piana et al (US 2004/0121114). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the melamine formaldehyde of Marx et al. into the coating composition of Nozaki et al. motivated to act as a crosslinking agent as well as to allow the polyurethane to soften when heated. Further, Marx discloses that the flame retardant comprising melamine formaldehyde and ammonium phosphate are widely used as an impregnating resin for a flame retardant coating of paper and textile

auxiliaries (column 7, lines 45-50; and column 8, lines 5-10). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the melamine formaldehyde of Marx et al. into the coating composition of Nozaki et al. because melamine formaldehyde is known to be used in combination with ammonium phosphate to form an impregnating resin for a flame retardant coating of paper and textile auxiliaries.

The examiner's comments regarding Appellants' issue B and C

Appellants have reiterated positions taken with respect to the other rejections, the examiner's comments set forth above are equally pertinent in the support of these rejections as well.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Hai Vo/

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/Rena L. Dye/

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/Jennifer Michener/
QAS TC1700